

August 23d.

DR. McEUEEN in the Chair.

Seven members present.

A paper was presented for publication entitled "On the Limits and Relations of the Raniformes." By E. D. Cope.

August 30th.

DR. McEUEEN in the Chair.

Twelve members present.

On report of the respective Committees, the following papers were ordered to be published :

Contributions to the Herpetology of Tropical America.

BY E. D. COPE.

Caudisona basilisca.

Two pairs of symmetrical muzzle plates in contact; third or posterior pair subdivided. Rostral subtriangular, higher than wide, in immediate contact with nasals and frontals. Oblique length of postnasal equal horizontal length of prenasal; latter separated by small scales from the anterior labials. Fourteen superior labials, separated from the suborbital series by two and three rows of scales. Three flat plates between the elongate, flat superciliaries. Temporals smooth. Scales in twenty-nine rows, external largest, and with two next on each side smooth. Tail stout, surrounded by thirteen longitudinal rows at the middle. Rattle very acuminate, with a lateral groove. Gastroteges 199; urostegeges 20 single, four terminal divided. End of muzzle to rictus 1 in. 10 l., to vent 44 in. 8 l.; vent to base of rattle 3 in. 1 l.

Ground color pale yellowish brown, much replaced by the following markings, which are on entire scales, not parts: about thirty dorsal rhombs from a short distance posterior to head to opposite vent, of a bright chestnut red, browner medially and white bordered; five scales long and fourteen wide inside the white border, on the median part of the body, where they are in contact. Posteriorly they are separated, anteriorly elongate. Laterally, between each rhomb, a spot of bright chestnut. Belly and inferior scales yellow, every second or third lateral the base of a short oblique chestnut band. Head dark brown; two elongate occipital spots. Superior labials yellowish. A narrow yellowish line from the small eye to the rictus. No lines on the neck. Tail dark grey, with five obscure rings.

Hab.—Near Colima, Mexico. From Consul John Xantus' collections. Mus. Smithsonian, No. 6118.

This species belongs in the section embracing the South American species, and the *C. molossus*, from all which it is quickly distinguishable. It has fewer labials and more scales below the eye than *molossus*, and possesses a different pattern of coloration, though the tints are nearly the same. The affinities with *adamanthus* and *atrox* are not distant; the plates of the muzzle and coloration are different.

Crotalus triseriatus Wagler (*Urosophus* Wagl., *Crot. lugubris* Jan.) is not rare on the Mexican Table land. It is allied to *C. lucifer*, but especially to *C. scutulata* Kenn.

Tomodon nasutus.

Body cylindrical, stout; neck but little constricted; head acuminate oval.

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Muzzle produced beyond the labial margin, oblique-truncate in profile. Rostral plate flat, not turned backward above. Both pre- and postfrontals longer than wide, the latter a little bent down laterally. Vertical more than twice as long as wide, lateral outlines not straight. Superciliaries broad; occipitals rather short, longer than broad; two postoculars, in contact with one temporal. One preocular just touching vertical; one longitudinal loreal, higher behind; one elongate nasal, the nostril anterior to its middle and connected by a suture to the margin below. Superior labials eight, third, fourth and fifth entering orbit; inferior ten; post-longer than pregenecials. Anterior maxillary and mandibular teeth longer than median. Pupil round. Scales broad, thin, poreless, in nineteen rows. Tail rather slender. Gastrosteges 186; one divided anal; urosteges 67. End of muzzle to rictus oris 7 lines, to vent 6 in. 2 l.; tail 4 in. 5 l.

General color light brown, punctulate with dark brown, especially thickly on head and sides. A darker brown band three and two half scales wide from occiput to end of tail, which is nearly broken into spots on the nape. Ends of scuta and first two rows of scales darker, especially anteriorly, where the band is sooty and spreads over the lips and chin; a faint longitudinal band above the shade; a short yellow streak from postorbitals to penultimate labial. Abdomen with many short punctulate streaks.

Hab.—Colima, Mexico. Xantus coll. No. 1341. Besides the preceding, this very fine collection contained *Spilotes auribundus* (= *salvini* Gthr.), *S. erebennus* (*obsoletus* Holbr.) *Conopsis lineatus*, *Phimothyr mexicana* (*Zamenis* D. & B.) and the following:

Toluca frontalis.

Muzzle prominent, acuminate, slightly recurved. Rostral separating prefrontals very slightly. Nasal long; postfrontal in contact with second superior labial. One narrow low preocular, two postoculars, the lower barely in contact with one temporal. Seven superior labials; eye over third and fourth. Occipitals longer than vertical, truncate, rounded behind; anterior suture of vertical a little longer than straight lateral. Seventeen rows of equal thin scales. Seven inferior labials; genecials very short, posterior pair reduced to scales. Urosteges 44; one double anal; gastrosteges 141. End of muzzle to canthus oris 8 lin.; to vent 8 in. 10 lin. Length of tail 1 in. 10 lines.

Color below uniform pale yellow. Above grayish brown, becoming more rufous medially, with about thirty-six rhombic, dark edged, brown spots, six scales wide and four long, whose angles are produced as vertical lateral bars. Together they become nearly cross-bands posteriorly, when they are separated by a pale spot on the vertebral line. A brown cross-band across postfrontals and vertical; a longitudinal band on each occipital and side of nape.

Hab.—Colima. Xantus coll., No. 1363.

In this genus and *Tomodon* the hypapophyses of the vertebræ are, as usual among the *Asinea*, not developed behind the anterior fifth or sixth of the column. A group of genera partly coinciding with that forming Jan's family *Potamophilidæ*, I find to possess these processes even to the vent, offering a new character of definition to the subfamily of the *Homalopsinæ*, as they may be called. The genera in which this structure exists are *Eurostus* D. and B., *Gerarda* Gr., *Hypsirhina* Wagl., *Cerberus* Cuv., *Homalopsis* Kuhl., *Helicops* Wagl., *Atretium* Cope; *Tachynectes* Fitz., (this genus is coryphodont in dentition; *T. chrysocticus* is a *Helicops*); *Tropidonotus* Kuhl., *Thamnophis* Fitz., *Xenochrophis* Gthr., (= *Thamnosophis* Jan), *Prymnomiodon* Cope, *Ninia* B. and G., *Storeria* B. and G., *Haldea* B. and G., *Tropidoclonium* Cope, *Amastridium* Cope. In *Herpeton* the processes are present, but very weak for a short distance posteriorly. In *Tretanorhinus*, otherwise similar to this group, there are only strong keels, as in a few *Colubrine* genera. *Glaniolestes* and *Heterodon* do not belong here; the processes are wanting; so also with *Xenodon* and *Thamnodynastes*. *Hydrops* and *Calopisma* belong to another section.

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Pseudaspis cana (Coronella Auct.) differs widely from the Coronelline genera in the strong posterior development of these hypapophyses, resembling *Lamprophis aurora*, which separates itself by this from the *Lycodonta*, where it has been erroneously placed.

Chamaeleolis porcus.

Height from superciliary margin to mandibular edge enters two and two-third times in length from end of muzzle to end of casque, ($3\frac{1}{2}$ times in *fernandina*); width of muzzle at middle $2\frac{2}{3}$ times in length from its end to the posterior border of orbit; (3 times in *fernandina*). Casque rather abruptly turned upwards. Labials nearly square, separated by but one row of large scales, from orbit. Inferior labials short, in contact below throughout with a row of ten more or less quadrangular infralabials, which are again margined by another row of longitudinal infralabials. Thickened margin of fan prolonged to symphysis, bearing a double row of long beard-like appendages. Scales of throat and fan minute, uniform, smaller than abdominal; the last tubercular, larger than in *fernandina*. Dorsal scales large, subquadrate, in seventeen transverse rows from axilla to groin; (28 in *fernandina*); in nine larger, and six very narrow dorsal series, separated by narrow, granular interspaces. Dorsal and caudal median fold well developed. End of muzzle to ear 2 in.; ear to vent 4 in. 2 l.; vent to end of tail 6 in. 10 l.; anterior limb 2 in. 3 l.; posterior limb 3 in. 1 l.

Color of a ♀ specimen long preserved in alcohol: A general yellowish gray, with five pairs of faint brown bands across the dorsal crest, and a large brow patch, on the anterior half of each side. Head with numerous black spots.

Cuba. Mus. Acad. Nat. Sci. Phila. One specimen from Dr. Gavin Watson. This species is stouter and shorter than the *fernandina*,* and differs much in the scutellation. It agrees with it in some minor points, as the temporal ridge, the process above the auricular opening, etc.

Eupristis balaeatus.

Scales all keeled, but little larger than smooth abdominals, separated and surrounded by granulations anteriorly. Scales of nuchal crest narrow, conic; of dorsal weak posteriorly. Very faint ridges on goitre, but every where a clothing of fine scales. Convergent ridges of occiput not distinct. Front tuberculous, two parallel lines running down the middle to end of muzzle, slightly concave between superciliary ridges. Canthus rostralis tuberculous; no occipital or supra temporal tubercles. Seven loreal rows; brachials larger than dorsals; antibrachials and many femorals two and three keeled. Four infralabials larger, the anterior not the largest. Below yellowish, posterior extremities and tail much marbled with brown. Above brown, with three greenish white cross-bands, which are broadest and turned backward on the median line; traces of intermediate bands are seen on the inferior part of the sides. The anterior is broken into spots, and two spots on the nape are opposite to two longitudinal pale shades on each side the neck. Head uniform brown; a light spot on lower scapular region. Brachium with two, antibrachium with four, femur and tibia each with three cross-bands of greenish white. Tail with numerous broad bands. Toes cross-banded. From end of muzzle to tympanic orifice (French measure) $4'' 5'''$; from tympanum to opposite vent $11'' 4'''$; vent to end of tail (broken) $26''$. Anterior extremity $6'' 3'''$; posterior $10'' 3'''$.

Hab.—St. Domingo. Mus. Brittan.; (from Sallé's collection.)

Xiphosurus ferreus.

A double nuchal crest. Dorsal and lateral scales large, keeled. Supra temporal swelling covered with large tuberculiform scales. Superciliae

* For a beautiful specimen of this animal I am again indebted to my friend Prof. Ph. Poey.

in contact; frontals large, smooth. Canthus rostralis higher than frontal ridge, sharp, elevated, bordered by four scales, the three anterior of which are in close contact with those of the frontal ridges, which are three, and are separated by two rows of large flat scales. Superciliaries five on each side, all transverse except the anterior, but one on each side in contact. Occipital large, oval, separated from superciliaries by one row, in a deep depression. Supraocular patch of four or five transverse scales of an inner series, and two or three round of an outer. Loreal rows five. Goitre small, covered with close series of produced oppendiciform scales. Symphyseals produced posteriorly. Two large anterior infralabials. Femoral scales larger; brachials, tibials and antibrachials equal to ventral, all weakly keeled. Dorsal little, lateral much smaller, strongly keeled. Scales of caudal crest larger than those of sides of tail. Muzzle to ear 3'' 4'''; ear to vent 8'' 2'''; vent to end of tail 19''.

Above dark brown, blackish on sides of head; below metallic green shaded with brown; under surfaces of tail and extremities pale brown.

Hab.—"Guadaloupe." Mus. Britt.

Xiphosurus homolechis.

No nuchal crest, a slight fold. Four larger dorsal rows of keeled scales—fold none, or indistinct. Supra temporal and lateral scales minute. Superciliaries separate; frontals equal, keeled. Supraorbital patch separated by a row of small scales from superciliaries. Canthus rostralis lower than frontal ridge.

Head short, muzzle acuminate; canthus rostralis sharp, a little decurved, its scales separated from those of the frontal ridge by one row of scales. Scales of front and muzzle nearly equal, as broad as long, keeled. Six superciliaries on each side, longer than broad. Occipital small, not in a depression, separated from superciliaries by many rows of scales. Goitre large. Three rows of subhexagonal scales in supraorbital disc, separated from superciliaries by one row of small scales. Lateral scales granular. Scales of caudal crest equal, lateral caudal; those of extremities larger than ventrals. Muzzle to ear 1'' 4'''; ear to vent 3'' 3'''. Anterior extremity 2''; posterior 3'' 6''.

General color brown, darker on nape and temporal region; below whitish, with green metallic shades, and indistinct brown variations posteriorly. Tail and extremities pale brown beneath.

Hab.—West Indies—the island unknown. One specimen, Mus. Britt.

Anolis Section. Tail compressed, or with a median larger series of scales; ventrals smooth.*

Anolis damulus.

Six superciliaries, nearly equilateral, except the anterior, which is very large, separated by one row of smaller scales; four rows between the anterior of the facial ridges, weakly keeled. Supraorbital disk of about 14 keeled scales, isolated. Occipital small, separated by many rows of small scales. Rostral plate emarginate above; nostril quite terminal, lateral. Five loreal rows. Symphyseals broader than long; three larger anterior infralabials—two anterior broader than inferior labials. Dorsal scales very small, equal; ventrals larger than brachials, which are keeled; infratibials smooth. Ear much smaller than fissure of eye, larger than nostril. Anterior extremity reaching beyond groin; posterior to anterior border of orbit. Tail nearly cylindrical, of moderate length; all its scales strongly keeled. A shoulder fold. End of muzzle to anterior border of orbit 6'''; between the latter points 5'''; muzzle to ear 1'' 3'''; ear to vent 3''; tail 7'' 5''. Anterior extremity 2''; posterior 3'' 3''.

Above metallic light reddish brown, with some minute glistening white points on the sides. Head above paler, lips varied with darker, a pale streak from below eye to ear. Limbs spotted, behind marbled with silvery, dark

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and light colors abruptly separated on posterior face of femur, which with the abdomen are pale golden below; gular region faintly greenish; chin brown, varicid. Tail brown, cross-banded near the end.

Anolis gingivinus.

Head elongate; from end of muzzle to auricular opening twice into length from posterior margin ear to posterior face femur. Muzzle rather narrow, end rounded and truncate in profile. Canthus rostralis straight, acute. Loreal region a little concave, with five (4) rows of scales, its greatest height half frontal width between last scales of canthus rostralis; latter distance equal from same point to top of rostral plate. Two pronounced frontal ridges not continued on anterior part of muzzle; concavity pronounced, elongate, enclosing two rows of smooth scales at middle portion, bordered by two large subequal scales in front of last superciliary; between anterior of these are three rows of scales, of which the median is often large. Posterior scales of canthus rostralis much larger than second. Superciliaries four or five, in contact, sometimes nearly separated by a row of granules. Supraorbital disc separated by only one row of granules from superciliaries. Occipital well developed, surrounded by numerous flat scales, in a strong depression. Symphyseals large, first infralabial a little smaller, like the second larger than any labials, and preceding an infralabial series of oblique scales. Ear equals half eye. A faint nuchal fold; two rows of larger median dorsal scales, less than brachials; laterals very minute. Ventrals oval, much larger than dorsals or brachials, smaller than supraorbitals. Fan elongate, moderately developed. Tail moderate, strongly compressed, with a strong crest of scales, of which every third is larger and the summit of a cross series. Ramus mandibuli in most specimens thickened in a vertical direction, forming a strong inferior ridge. Posterior limbs short. From end of muzzle to ear opening 1' 9''; from latter to vent 4' 4''; anterior limb 2' 7''; posterior to heel 2' 7''; foot 2''.

Above greyish or rusty brown, with darker, rather close vermiculations on the sides, which form a dark superior border to a broad pale band from above axilla to groin. This is bordered below by brown, below which are other dark vermiculations. Inferior surfaces, including fan, immaculate. ♀ is similar, except in the absence of the dark markings not bordering the lateral band.

Six specimens from Anguilla Rock, near Trinidad; presented by W. J. Cooper to the British Museum.

Anolis citrinellus.

Muzzle of medium outline, slightly depressed and rounded at extremity, less than twice as wide between lachrymal angles than loreal height, but twice as long from same point. Canthus rostralis straight, the posterior scale largest, the fourth under the lateral nostril. Facial ridges not strong, higher than canthus, each with two large scales in front of first and large superciliary, and enclosing three rows of smaller, flat, smooth scales, which are broad as long, the two outer larger than the median. Superciliaries large, four on each side, in contact, nearly separated by a row of minute scales, and separated from the round occipital by three rows of scales. Supraorbital disc touching or not touching supraorbitals, two larger and six smaller, the inner anterior longer than broad, three times the size of second. Five rows of loreals. Three anterior infralabials larger than labials, the anterior less than symphyseal. Auricular opening two-thirds of ocular. Fan elongate, rather closely scaled. Abdominal scales about equal middle interrugal and brachial; some of the thoracic keeled. Anterior femoral larger, very weakly keeled; inferior tibials and antebrachials more strongly. Two median dorsal rows larger keeled, much less than abdominals; other dorsals and laterals minute, but rather coarse and tuberculiform. Tail but moderately com-

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pressed, with a low crest. End of muzzle to ear $1'' 1\frac{1}{2}'''$; ear to vent $3''$; vent to end of tail $7'' 5'''$. Anterior extremity $1'' 5\frac{1}{2}'''$. Posterior to heel $1'' 6'''$; hind foot $1'' 4'''$.

Above dark brown, nape, vertebral line, and about five broad transverse cross bars on each side darker, the space between tinged with yellowish. Below bright yellow, gular region greyish, with some faint longitudinal brown lines; chin, labial and rostral shields yellow, or tinged with it. Extremities dark, with a few very faint cross bars.

Hab.—Hayti. Mus. Britt.

*** Tail cylindrical, or with vertebral and lateral scales equal; ventrals keeled.*

Anolis carneus.

Scales everywhere flat and smaller than frontal. Head short, broad, especially occiput. Front narrow, concave, superciliary rows separated by two or three rows of scales. Superciliaries nine or ten, not wider than long, not continued as a large row on facial ridges, which are high, rounded, enclosing deep concavity, which is filled with equal subhexagonal scales, smooth or slightly one-keeled. Canthus rostralis sharp, short, descending steeply; nostrils lateral, eight or ten rows of narrow scales between. Occipital small, surrounded by nearly equal scales, which a little exceed the smooth dorsal. Eye large; eight loreal rows. Many rows of keeled infralabials, scarcely larger than gulars. No whorls among tail scales, which are very weakly keeled. Ear nearly as large as eye slit. Supraorbitals weakly keeled, in five rows, not forming an isolated disc. From ear to end of muzzle $3\frac{2}{3}$ times from latter point to vent, in an old ♀ specimen, four times in a young ♂. No dermal dorsal fold. $9'' 5'''$ from muzzle to vent; tail $16''$; groin to heel $5''$; hind foot $3'' 5'''$; anterior limb $4''$ —all from ♀, which is light yellowish brown above; a pink shaded median dorsal band, on each side of which is a narrow brown band, which commence by two convergent portions on occiput, and are interrupted behind opposite axilla; two or three other more or less interrupted paler brown streaks on each side. Brown band between eyes. Beneath immaculate. Young ♂ every where rose colored, with some blackish markings on posterior part of sides, and faint bands across hind and fore limbs. Goitre very small.

Two specimens in Mus. Britt. Lower Vera Paz Forest. Obtained from Osbert Salvin, a thorough explorer of that region.

A. semilineatus.

Near to *cyanopleurus*; agreeing in most points in squamation; but instead of six or seven there are 10—12 rows of larger dorsals; 2—3 larger smooth infralabials; front scales broad as long, smooth, six rows from canthus row to canthus row at half way to nares. A triangular patch of scales as large as loreals behind the eye, which are abruptly surrounded by the minute lateral.

A brown shade from lores to middle of side; yellow band from supralabial line to middle of side or groin, which is bounded above and below by a dark shade. Size, that of *cyanopleurus*.

Hab.—Hayti. Mus. Brit.

Anolis bitectus.

Muzzle acuminate, with scales broad as long, 1—3 keeled, those between ridge rows much smaller, minute, yet flat, one row between the double rowed superciliaries. Occiput oval, surrounded by small scales. Two rows of rather broad keeled supraorbitals. Ear $\frac{1}{2}$ of eye; seven loreal rows; canthus rostralis short, nearly straight. Infra-maxillary small, equal, keeled. Minute scales from eye along side; nine larger dorsal rows, then two median size each side, then lateral. About eighteen rows of ventrals. Male with well developed goitre. Tail rather short. From end of muzzle to ear $1'' 3'''$; to vent $5'' 2'''$; hind foot $2''$; heel to groin $2'' 7'''$.

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Above light brown, below and on upper tip yellowish, abruptly separated from color of upper surfaces, which is on sides a dark band from eye, extending in ♀ only to groin, and is bordered below with distinctly paler to middle of side.

Two specimens. West Equador. From Fraser's collection.

Anolis cypheus,

Lateral scales minutely granular, graduating into larger, many rowed, keeled dorsals, which are very much less than ventrals, and less than frontals. Superciliary row not continued as larger scales to canthus, composed of nine scales, separated by three rows of keeled scales; twelve rows at middle of muzzle between canthus rows, as broad as long, obtusely one-keeled. Canthus rostralis descending steeply, nearly straight, from lachrymal processes to same, equal from same to end of muzzle, and longitudinal diameter of orbit. No prefrontal concavity. Frontal and occipital region elevated. Eight loreal rows. Supraorbitals very small, on inner part of the region, in longitudinal series, keeled; rest of surface granular. Occipital not large, surrounded by many flat scales, and between two bony crests, which unite posteriorly to it, send off a posterior median crest, which after 2" length, sends off a nearly transverse branch on each side. Ear $\frac{1}{2}$ size of eye opening. Infralabials small, longitudinally keeled. Keeled scales of limbs *much* smaller than abdominal; caudals very small, equal at root of tail. Trace of goitre in ♀. Digital dilations very narrow. From end of muzzle to ear 1" 6''; to vent 6" 8''; vent to end of tail 11" 2''; hind foot 2" 6''; groin to heel 3" 8''.

Bright green; brown band across muzzle and eyelids, and some small white specks. Narrow blackish cross-bands directed forward on sides, and longitudinal reticulations from axilla. Femur? twice, tibia once brown cross-banded. Immaculate below; throat bluish.

Anolis ustus.

Resembles superficially *alutaceus* and *damulus*. Head flattened; muzzle acuminate; greatest width between posterior scales of canthus rostralis from same point to anterior margin of nostril, which is lateral, and near end of muzzle. Ridges scarcely perceptible; concavity shallow, broad, three scales wide. Scales of front broad as long, slightly one-keeled, in six or seven rows between canthus; five rather large superciliaries which are in contact, or separated by one row of very small scales; occipital large, surrounded by flat scales; supraorbitals five or six; three broad, smooth on inner row, in contact with superciliaries, except on one side of one specimen. Dorsal scales smaller than caudal, ventral or prefemoral. Five loreal rows; canthus nearly straight; ear $\frac{1}{4}$ of eye; dilations well developed; goitre weak. Infralabials few, small, shorter anteriorly. Tail a trifle more than twice head and body; muzzle to ear 1" 2''; ear to vent 2" 9''.

Yellowish brown, with several short, irregular, darker, lighter bordered, half-fasciæ above. Head darker above; streak across between eyes. Gular and lateral regions with ferruginous small spots and shades. Tail with transverse dark shades. Extremities darker, paler, few cross banded.

Two specimens. B. M. Belize.

Anolis heliactin.

Size small; head large, elongate, depressed; ridges weak; concavity shallow, short; fourteen more or less rows of narrow, keeled, not imbricate dorsal scales which graduate into the granular lateral, and are smaller than the imbricate ventral: the last about equal to those on the middle of the front. Interrugral scale shield-like, broad as long, faintly keeled; a little larger than those of the ridges: these are continued as a row to the middle of the canthus rostralis, and number nine scales from that point to posterior extremity behind orbit; they are separated by two rows of small scales, and two on each side from the round flat occipital; also by one row from supraorbital

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disc. Six superior labials; five loreal rows. Disc composed of two rows of broad scales; the inner larger, keeled. Infralabials longitudinal, smaller than labials. Fan large. Ear one-third of eye fissure. Nostrils opening laterally. Femur and tibia of moderate length. Tail very long; its scales larger than dorsal or ventral. Knee and elbows not meeting on the side by the length of the humerus; heel not reaching axilla, longest toe posterior part of orbit. Digital dilatations narrow. Muzzle to ear enters three and one-half times into from muzzle to between femora. Pale yellow, with faint coppery and green reflections. Head tinged with brown; labial plates whitish.

Hab.—"Mexico." Mus. Academy Natural Sciences of Philadelphia.

Anolis nannodes.

Very slight concavity on muzzle; ridges low; scales of front broad as long, smooth or slightly roughened. Superciliaries in contact; small flat scales round the occipital. Dorsal scales very much smaller than those of front, and equal abdominal; seven or nine rows in the middle a little larger. Infralabials numerous, little distinct, equal, keeled. Loreals four or five rows; canthus rostralis nearly straight from angle of eye; eight rows between canthal rows at middle muzzle. Ear $\frac{1}{2}$ size of eye opening. Eye not prominent. Two rows supraorbitals; inner much larger; four or five transverse in curved series separated by granular scales from superciliaries. Tail and extremities short; digital dilatations broad. End of muzzle to tympanum 1'' 2'''; former to vent 4'' 5'''; hind foot 1'' 1'''; limb 2'' 5'''; tail 7''.

Light reddish brown, with a brown cross band between eyes and across muzzle, and spot on each side of sacral region. The male with indistinct brown cross lines on back; female a darker median shade, and indistinct blackish line on each side.

Three specimens, two from Godman and Salvin's collection from Coban, Vera Paz, Mus. Brit. Sp. 6116 Mus. Smiths., Arriba, Costa Rica, from C. N. Riotte, and No. 6117 Xalapa, De Oca.

Anolis crassulus.

Differs from *sallei* in larger ventral and dorsal scales; in smoother, broader scales of front, especially superciliaries and supraorbitals. More numerous supraorbitals; shorter muzzle, a few larger, smoother infralabials. Differs from *nebulosus* in number and separation of superciliaries and in supraorbitals, apparently.

Eyes rather small; muzzle not long, not short, rounded acuminate, a little depressed at tip. Frontal depression strong, containing five or six scales, counting across its anterior part. Superciliaries as broad as long, separated by one or two rows (in one specimen in contact, perhaps abnormally); eight from canthus rostralis to point nearest occipital; all scales of front smooth, thick, as broad as long. Two rows broad subhexagonal supraorbitals, four or five broader on inner row, forming a disc not surrounded by granules. Two or three outer infralabials equal inferior labials. Goitre well developed. Four loreal rows: 13—14 rows of dorsals graduating rather suddenly into laterals; a little smaller than ventrals and prefemorals. Tail stout at base. Ear $\frac{1}{2}$ — $\frac{1}{3}$ eye slit. Pale reddish brown, below yellowish; top of head darker; front loreal region through eye along each side of neck a brown indistinct band, bounded below by a narrow yellowish one from whole labial length, which is prolonged posteriorly. ♀ with a yellow dorsal band. End of muzzle to ear 1'' 4''', to vent 4'' 7'''; hind foot 1'' 7'''; heel to groin 2''; tail 9''.

Two specimens. Coban, Vera Paz. "Central America." Mus. Brit. Sp. in Mus. Smithsonian and Acad. Nat. Sci.

Anolis cymbops.

Width of head between temporal ridges equal to its perpendicular diameter at occipital plate; muzzle rather short, acuminate; loreal region straight, 1864.]

high; canthus rostralis straight, steep; muzzle swollen between nostrils; no facial ridges, but a well marked, broad concavity. Eyes large; palpebræ projecting upwards, with a supraorbital disc of three rows of keeled scales, which are longer than broad. Seven rows of loreals; superciliaries six or seven, separated by one row of scales of nearly equal size; four rows between continuation of superciliary rows, but all of nearly equal size, broad as long, some keeled; eight scales across middle of muzzle; on end of muzzle smaller. Two rows of scales (suboculars divided) between orbit and superior labials. Labials $\frac{1}{3}$. Symphyseal posteriorly convex in outlines, infralabial small, subequal, keeled. Occiput small, surrounded by numerous flat scales. Abdominal scales smaller than those of front, obtusely keeled. Laterals and dorsals granular, minute, gradually a little larger dorsally, but less than two median rows, which extend from nape to on tail, which are keeled and smaller than the abdominal. Exterior scales of extremities larger, keeled. Digital dilatations not broad. Hind limb extended, reaches to middle of lores. Tail slightly compressed; scales at base smaller, flat, keeled; two meridian rows larger. End of muzzle to ear 1'' 1'''; ear to vent 2'' 9''; vent to end of tail 6''; anterior extremity 1'' 7''; posterior to heel 1'' 9 $\frac{1}{2}$ ''; hind foot 1'' 4 $\frac{1}{2}$ ''.

Above brown, outer edges of the two median dorsal rows much darker; a cross band on tibia; below yellowish brown, rather closely shaded with reddish brown, especially posteriorly and on extremities. A dark shade in front of each inguinal region.

One sp. ♀. Vera Cruz.

*** Tail cylindrical, without crest, or covered above with equal scales: ventrals smooth.

Anolis impetigosus.

Muzzle elongate acuminate, depressed, rugæ obsolete; concavity shallow, elongate rhombic; nostrils terminal; canthus rostralis not prominent. Scales of front large, smooth, polygonal, as long as broad, anteriorly a middle series separated by smaller ones from those of the canthus rostralis. Two large broad plates between canthus rostralis and end of superciliary series. Latter in contact medially, separated from the small occipital, which is surrounded by flat subhexagonal scales, where they can be seen. Two bony ridges, converging from the posterior part of the superciliaries, meet on the median line, and project a short mucro, which is a little behind above the auricular opening. Between these, as far as the narrow frontal region, the head is roughened by minute exostoses. Supraorbital disc small, in contact with the superciliaries, composed of three large inner and one small outer scales. Loreal rows two; auricular opening little more than half ocular. Abdominal scales larger than dorsal, considerably larger than those of the front. Dorsal, lateral and longest extremity equal, smooth, flat, not regularly arranged; epidermis minute, scales of tail smaller than dorsal, except four median inferior rows, which are keeled and nearly as large as those of front. Symphyseals longer than broad, slightly divaricating posteriorly. Eight inferior labials bounded below by one row of infralabials anteriorly, and two rows posteriorly; the former larger than the labials, longitudinal. Gular fan large. Extremities short; tail a little longer than head and body, terminally compressed. End of muzzle to ear 1'' 3'''; ear to vent 3'' 10''; tail 6''. Anterior limb 1'' 5''; posterior 2'' 3''.

Above and laterally very pale brown, with numerous short, darker, longitudinally arranged streaks; tail with a reddish tint. Below pale yellow; gular fan with many large black spots.

Habitat.—Unknown. One specimen. B. M.

Anolis gibbiceps.

Short and stout; head broad and square posteriorly, short acuminate ante-

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riorly; canthus rostralis elevated, little concave; frontal concavity well-marked, not contracted anteriorly. Eyes and ears large, orifice of latter one-half that of former. Nostrils lateral terminal. Loreal scales small, eight-rowed; muzzle and front scales longer than broad, striate, and sometimes one-keeled, of equal size, in nine longitudinal rows across middle of muzzle; superciliaries eight, a little broader than long, separated by three rows of scales. Supraorbital disc surrounded by smaller scales, and composed of six or seven elongate, keeled scales. Occipital small, surrounded by small, equal, rough scales. Infralabials small, equal, numerous, keeled; antibrachial and prefemoral keeled scales larger than abdominals. Laterals and dorsals small, graniform or carinate; two or three median rows a little larger, less than abdominals, strongly keeled. Scales round base of tail equal, keeled, as large as antibrachial. Muzzle to ear 1" 4"; between temporal ridges 9"; muzzle to vent 3" 9". Anterior extremity 2" 4". Groin to heel 2" 6"; heel to end digit 2".

Above bronze brown, the head browner, the tail redder; below pale metallic ferruginous with green reflections; no regular or distinct lines or spots.

One ♀ specimen from Caraccas, with trace of gular fan, in Mus. Brit.

*** Tail compressed, or with a crest of compressed vertebral scales; ventrals carinate.

Anolis ordinatus.

Head broad, subacuminate, depressed at end of muzzle, from which point to middle of marginal supraorbitals equal between two latter points. Canthus rostralis a little convex. Only one large scale on frontal ruga in front of last superciliary. Front and muzzle scales longer than broad, one-keeled, in regular longitudinal series, not imbricate; six rows between nares, (lateral subterminal) of which the four middle are equal; five loreal rows, labials five or six. Only one large infralabial. Occipital surrounded by small scales. Supraorbital disc nearly or quite isolated, each scale keeled, as broad as long, three larger in inner series. Auricular opening half ocular; fan well developed. A slight dorsal nuchal fold. Scales of the extremities keeled; of femur largest, larger than abdominal. A few dorsal scales gradually larger, especially two median, which are weakly keeled. Tail much compressed; scales at base minute. Trace of rhombic occiput depression. End of muzzle to ear 1" 4"; ear to vent 4" 3". Anterior limb 2"; posterior to heel 2" 2"; foot 1" 8".

Yellowish brown, or a series of light small spots on each side of back, bordered with dark brown; and some vertical series of larger confluent similar spots, dark bordered. ♀ with a pale greenish median dorsal band not laterally defined, but bounded between femora and on base of tail by two large brown spots on each side.

Two specimens, ♂ ♀. "W. Indies."

Anolis alliaeus.

Near *leachii*, but with larger frontal plates and weaker face ridges, etc. Four rows in the almost flat front cavity smaller than three or four polygons between terminal scales of front ridge rows; of these there are three—two lying along canthus. Six rows between lateral nostrils. One row between superciliaries, which are broader than long, and one row of granules between lateral and supraorbital disc. Some swollen scales round occipital, four (five) loreal rows; between posterior scales of canthus rostralis equal from same to end of muzzle. Ear two-thirds of eye. Symphyseals very large, larger than first infralabial, second larger than inferior labials; third infralabial large. Lateral scales minute, rough, scarcely smaller than dorsals, except two median rows of larger keeled, which are less than the keeled equal brachials, which are less than weakly keeled oval abdominals, which are less than keeled prefemorals. A slight fold on nape. Four large inferior caudals. Dilatations not narrow. Fan not very extensible, elongate. End of muzzle to ear 2½ times in from ear to groin. Large row of equal caudal crest scales. Laterals small, keeled; four inferior rows large.

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Bright dark bluish-green, with coarser or finer black vermiculations on neck, nape, gular and scapular regions. An elongate, black, light-edged spot above axilla, on each side interscapular region, and one or two each side of nape. Head above, anterior to line connecting angles of mouth, pale brown. End of muzzle to ear 1'' 9'''; ear to vent 4'' 7'''. Anterior limb 3'' 3'''; posterior to heel 3''; heel to end digit 2'' 4''.

Hab.? Mus. Brit.

Of the preceding species of *Anolis*, sixteen have been derived from the British Museum collection. My particular acknowledgments are due to Drs. Gray and Günther, the directors, for the ample facilities afforded me in the examination of these and of other objects of interest under their care.

Laemactus serratus.

Occipital prominence shorter and more elevated than in *L. longipes*, its border serrated with six prominent angular scales. Front with three pairs of large plates, the two posterior bounded exteriorly by two others. Seven superior labials to beneath orbit; infralabials smaller, lateral scales larger than in *longipes*. Scales everywhere keeled; dorsals a little smaller than abdominals. Collar not very distinct. Dorsal crest not elevated on the posterior half of the back.

A yellow band from loreal region to groin, brown bordered above from orbit to ear. A broader pale lateral band and six brown cross bars on the back.

This species is said to be found in the Orizaba Valley, Mexico. It is figured by Prof. Duméril in the Archives du Musé, 1856, pl. xxi. Specimens are also in the Museums of London and Leyden, the latter of which, through the liberality of Prof. Hermann Schlegel, have served as the types of my description.

The *Laemacti fitzingeri*, *obtusirostris* and *undulatus* of Wiegmann, belong to the genus *Urostrophus*, while the *L. acutirostris* is a true *Polychrus*. The type specimens of Wiegmann are preserved, under the direction of Prof. Peters, in the museum of the Friederich Wilhelm's University in Berlin. My thanks are due to the Professor for the many facilities which he kindly placed at my disposal, during investigations among these and his own numerous types.

Uta nigricauda.

Series of large dorsal scales narrow, embracing seven rows of uniform size; the scales smaller than the smooth abdominals, keeled, those posterior larger than those in the anterior part of each row. Laterals minute, flat; caudals largest of all, very strongly keeled; antibrachials and prefemorals larger than dorsals, keeled. Two dermal folds on each side, and a strong one in front of gular fold, beside a few cross folds in front of shoulder. Ear large, with three small fringe scales. Lateral occipitals small; frontal long, undivided, preceded by five large scales, of which the posterior pair is in contact on the median line. Five rather broad supraorbitals, separated from marginal row by minute scales. Infralabials five on each side, large, separated by one row of smaller scales from labials; the anterior pair in contact. Eleven and twelve femoral pores. End of muzzle to ear 5 lin.; ear to vent 1 in. 5½ l.; vent to end of tail 3 in. 2 l.; anterior limb 9 l.; posterior 1 in. 2 l.; hind foot 6½ l.

Brown above, sometimes very dark, with seven short lateral black cross-bands, sometimes light edged behind, on each side; never confluent across the median line. Tail black or blackish brown. Head above lighter, with a few superciliary brown specks or cross lines. Each side of abdomen blue from axilla to groin, deepest and nearly meeting other side on the median line. Throat in males orange.

Hab.—Cape St. Lucas, Lower California. From the Xantus collections, (No. 3723) Mus. Smithsonian, No. 5307. Mus. A. N. S. Phila.

This species is nearest *U. graciosa*, of the Colorado region, but has a shorter muzzle, broader front, and other distinguishing traits. It was found

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in considerable abundance with *U. stansburiana* and *thalassina*. *U. bicarinata* has been described by Prof. Duméril as typical of his genus *Phymatolepis*; it cannot be separated from *Uta*. His *Sauromalus* is also *Euphyre* of Baird.

Sceloporus utiformis.

Ten longitudinal rows of large, highly keeled, shortly mucronate dorsal scales, separated by many lateral series of minute flat scales, from the smaller entire edged abdominals. From axilla to ear the laterals are granular; a dermal fold extends to temporal from scapular region, and sends branches to a V-shaped fold, which extends downwards and backwards from the posterior border of the large auricular opening. Six (seven) rows of shortly highly keeled scales on nape; from which point to rump are about 26 transverse series. Gular scales entire; three moderate infralabials. Six rather short supraorbitals, separated from marginals by three rows of small scales. Interparietal as broad as long, subrectangular, with two parietals on each side. Frontoparietals not subdivided transversely, as is usual, but subdivided longitudinally to frontal; latter a little longer than broad; first row between canthi of three broad plates fully in contact. Profile arched, muzzle prominent, narrow. Thirteen femoral pores. Tail cylindrical, long. From end of muzzle to ear $7\frac{1}{2}$ l.; from ear to vent 2 in. 1 l.; vent to end of tail 5 in. 7 l.; anterior limb 1 in. 2 l.; posterior limb 2 in.; hind foot 11 l.

General color blackish, with numerous indistinct lighter cross bars. Below pale greenish grey; gular region greenish, with narrow light cross lines.

Hab.—Near Colima, Mexico. Obtained by John Xantus, U. S. Consul at Manzanillo.

A species technically nearest to the *S. couchii*, which exhibits much smaller dorsal scales, and approaching the genus *Uta* in its scutellation.

Sceloporus pyrocephalus.

Dorsal scales much larger than ventral, strongly keeled, unimucronate; in about twenty-five transverse oblique series from nape to crural region. Lateral scales larger than abdominal; of the latter a portion only slightly emarginate. Scales from ear to shoulder squamous; those of ear fringe a little larger than those anterior to them. Tail much compressed. Femoral pores twelve. Supraorbitals five, transverse, in immediate contact with narrow marginals, not touching superciliaries. Frontoparietal narrow; frontal broader than long, not divided. Parietals exceedingly small; interparietal large, much broader than long. Frontonasals two each side broader than long; posterior in contact; anterior embracing broad hexagonal internasal. Infralabials small, except the anterior pair, which is large and extensively in contact. From end of muzzle to ear 6 lines; ear to vent 1 inch 9 lines; length of anterior limb 11 lines; of hinder limb 1 inch 5 lines; of hinder foot 7 lines.

Greenish brown, with a broad black band from the scapular region to the groin, light bordered above. Below yellowish, sides bluish ash to near the median line, on each side of which is a series of from seven to nine transverse blue bars. Upper labial and gular region striped with a series of black or bluish lines, which converge posteriorly on a paler or deeper yellow ground. Top of the head bright chestnut red; the fontanelle white or pink, surrounded by a pale area. In many specimens, especially females, the head is brown above, except the parietal spot.

Hab.—Near Colima, Mexico; obtained by Jno. Xantus, U. S. Consul at Manzanillo, where it is abundant. Collection Nos. 1223, 1311. This small species may be known from the *thayeri* by the extension outward of its supraorbitals, and small size of its parietals, as well as by coloration, and its remarkably compressed tail.

Sceloporus oligoporus.

Dorsal scales large, mucronate, in twenty rows from interscapular to sacral

regions, larger than laterals, which are larger than ventrals: last with a sharp mucro, and one or two emarginations. Tail cylindrical; femoral pores only two or three. Parietals large; interparietal longer than broad. Frontal and frontoparietal broad; former longer, undivided. Divided frontonasals and internasals in contact; supraorbitals in contact with both marginals and superciliary ridge, four on each side. Three pairs infralabials, transverse, the anterior barely in contact. Three bordering scales of ear, not larger than those preceding. End of muzzle to ear 11 lines; ear to vent 3 inches, 5 lines; length of tail 3 inches; length of anterior extremity 8 lines; posterior 2 inches 7 lines; hind foot 1 inch. Males, above brown, with a yellowish dorsolateral band and seven or eight pairs of yellowish, anteriorly black edged spots on the back. Top of head red; below whitish; sides faintly blue tinged. Females brown-olive, with a paler dorsolateral band. Throat, a broad band to shoulders, and sides of abdomen, blue.

Hab.—Near Colima, Mexico; from the Xantus coll.

A species to be compared with *clarkii*, *zosteromus* and *spinosus*, and differing from them and all other species in the fewness of the femoral pores, thus approaching the genus *Proctotretus*. The frontal is not narrow as in *zosteromus*, nor the ventrals rounded emarginate as in it and the other species. The supraorbitals are bordered by small scales in *spinosus*.

Sceloporus malachiticus.

Dorsal scales larger than lateral which are larger than ventral, strongly mucronate, in 25 to 28 rows from interscapular to sacral region, fourteen rows between axillæ and eight to ten between femora. Scales before shoulder squamous; marginal ear scales very small; supraorbitals five, broad, short, separated by small scales from superciliary ridge, and larger scales from narrow marginals. Parietals small, subtriangular; interparietal with parallel lateral borders, longer or as long as broad. Internasal broad; its anterior suture nearly straight. Infralabials small; anterior little or not in contact. Abdominal and gular scales not mucronate, and apparently not emarginate. Lateral scales, even to axilla, strongly mucronate, four times emarginate to serrate. End of muzzle to ear $8\frac{1}{2}$ lines; ear to vent 2 inches 5 lines; anterior limb 1 inch, 5 lines; posterior limb 2 inches; tail?; sixteen femoral pores.

General color bright green, with angular dark cross-bars, five or six on each side. Sides of abdomen and throat blue; the latter extending to nape.

Habitat.—Costa Rica, near Arriba, whence the Smithsonian Institution has received specimens, 6492, through Chas. N. Riotte.

This animal is the tropical representative of our *Sundulatus*, though in general appearance not unlike the *formosus*. The much stronger mucronation and emargination of the scales, especially on the sides, as well as the color, are distinguishing traits.

Phrynosoma asio.

Nostrils lateral, in the line of the canthus rostralis. Three or four series of lateral gular scales on each side, which are short and subequal. Rostral present, flat semi-discoid. Eight scales on sharp infralabial ridge. Superior labials nine, subequal, not produced into horns continuous with temporo-occipital crest. Horns of latter, two diverging temporal, separated from two vertical occipital, which are separated by a depression. One high acute posterior superciliary on each side. Auricular opening large, bounded below and behind each by a bunch of spines. Two lateral series, superior large. Pectoral and abdominal scales large, keeled; femoral pores 7 to 9. A dorsolateral series of very thick spinous processes, and two median dorsal rows of flat mucronate scales, which become four rows of spines on the tail; one median nuchal row. Femur and tibia with two rows of spines each; three rows of very strongly keeled plates on the humerus. Tail of ♂ as long as from shoulder to vent; i. e., 5 inches 4 lines. End of muzzle to ear 1 inch; to shoulder 1 inch 6 lines; to

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end of temporal horn 1 inch 4 lines; to end of superciliary do. 1 inch. Width of front between middle of superciliary ridges 8 lines. Width of body (exclusive of lateral spines) 3 inches 4 lines.

General color ashy; the head pale; the body brownish: from occiput to groin between dorso-lateral and lateral rows of spines, deep brown, leaving a narrow pale space on nape. Four broad brown cross-bands anterior to sacral region, pale bordered posteriorly; nearly obsolete in ♂; tail with many brown, pale-edged cross-bands; below unspotted.

Habitat.—Colima, Mexico; from consul John Xantus.

This is the largest species of horned frog, and very distinct. Its affinities are between *cornutum* and *coronatum*.

Gerrhonotus gramineus.

Two pairs supranasals; the posterior longitudinal, elongate; internasal smaller than frontonasals. Four short supraorbitals; four marginals. Eleven supralabials. Two frenonasals, the smaller above the larger; one frenal and one very large freno-ocular. Six in first, five in second row of infralabials. Muzzle not produced; plates of head thickened and roughened, especially enlarged on the temporal region. Dorsal scales in twenty-three longitudinal series from nape to opposite groin, and in fourteen longitudinal rows; in form twice as long as wide, thick, with an obtuse keel, roughened in old specimens. Abdominal scales in twelve and fourteen series; lateral fold very weak. Extended limbs touching, or the posterior reaching wrist. Muzzle to ear 1 inch; to vent 4 inches 4 lines; vent to axilla 2 inches 11 lines; to end of tail 6 in. 3 lines; anterior limb 1 inch 2 lines; posterior 1 inch 7 lines.

Above bright pea green, each transverse series of scales blackish at the base, and yellowish at the tips. Below pale green, with a reddish tint in some, gular region and lower jaw yellow, abruptly separated from the green of the neck.

Habitat.—Orizaba, Mexico. Mus. Smithsonian. From a fine collection (No. 50), made by Prof. Sumichrast, which contained also *Spilotes poecilonotus* and *Atropus undulatus*. The Professor has recently published some interesting observations on the habits of certain Mexican reptiles in the *Ann. Mag. N. Hist.*, 1864, p. 497.

Diploglossus steindachneri.

Tail cyclotetragonal. Scales in thirty-two longitudinal rows, (ten dorsal), without central keel, eight and ten striate. Limbs weak, not meeting when pressed to side by the length of the hind foot; digits much compressed, claws acute. Five supraorbitals; frontal longer than broad, subparallelogrammic. No frontonasals; internasal broader than frontal. Supranasals very large. Two frenonasals, one above the other; one very high prefrenal; two postfrenals, one above the other; one freno-orbital. Nine supralabials. Interparietal triangular, longer than broad, separating the short parietals, whose posterior outline is emarginate and embraces the broader than long postparietals; frontoparietals very small. End of muzzle to shoulder 1 in. 1 l.; shoulder to vent 2 in. 6 l.; vent to end of tail 5 in. 2 l.; posterior limb 1 in. 2 l.

Olivaceous, the sides tessellated with small black spots, which become bands on the axillary and postauricular regions; lips greenish, black spotted; below uniform pale greenish.

Hab.—Orizaba, Mexico. Sent to the Mus. Smithsonian, (No. 6342), by Prof. F. Sumichrast. Dedicated to Dr. Franz Steindachner, of the Imperial Museum of Vienna.

Lampropholis assatus.

Scales small, entirely equal, in thirty longitudinal rows. Body subcylindrical; head short, not depressed. Tympanum large, in a deep depression, which is not fringed. Nasals and frontonasals respectively not in contact. In-1864.]

ternasal little broader than long; frontal much produced anteriorly, very acuminate posteriorly. Single frontoparietal broad as long, with transverse posterior suture. Four rather large supraorbitals. Interparietal longer than broad; parietals narrow, in contact posteriorly, not succeeded by a double row of transverse scales. One high frenonasal, one frenal, two freno-orbitars, one above the other. Superior labials seven. Palatine maxillary laminae overlapping their whole length. From end of muzzle to axilla $7\frac{1}{2}$ lines; axilla to vent 1 in. 1 l. Length of tail 2 in. 5 l.; of hind limb $6\frac{1}{2}$ lines.

Above brown fulvous; below pale fulvous; a faint dark line from eye across scapular region.

Hab.—Guatemala. Taken by Capt. J. M. Dow near the Volcano of Isalco, and presented by him to the Mus. Acad. Nat. Sciences.

The genus *Lampropholis* was first established by Dr. J. E. Gray, and called by him *Mococa*. I prefer using the more classic and prior name of Fitzinger, though the genus is not to be attributed to this author. The present species is the first which has been found on the American continent. The American species placed in it by Gray belong to the genus *Oligosoma* Grd., under which *Oligosomella* Grd., *Leptosoma* Fitz., and perhaps *Hombromia* Grd., may be placed as synonyms.

Oligosoma gemmingeri.

Scales in twenty-seven longitudinal rows; the two median nuchal scarcely larger. Body stout, cylindrical, limbs short, weak, the anterior reaching the anterior margin of ear anteriorly, posteriorly not touching extremity of appressed hind limb by its length. Seven upper labials; one frenonasal, frenal, and freno-orbital each; parietals short; interparietal nearly broad as long. End of muzzle to axilla 10 lines; axilla to vent 1 in. 8 l.; posterior limb $8\frac{1}{2}$ l.

Above fulvous or brown; beneath yellowish white. A dark dorso-lateral streak extends from the nostril to a distance on the tail, which is light bordered above on the body, and borders above a dark lateral shade.

Hab.—Orizaba, Mexico. From Prof. F. Sumichrast. Mus. Smithsonian, No. 6331.

This Mexican representative of our *O. laterale* differs in its stouter body and shorter limbs, its nearly equal dorsal and nuchal scales, its much shorter posterior cephalic and labial plates, and in color. Named in pleasant recollection of Dr. Max. Gemminger, of Munich, author of *Fauna Boica* and other works.

Paludicola pustulosa.

Muzzle compressed, narrow, plane above, produced beyond labial margin; canthus rostralis rounded. Nares nearly terminal; eyes rather large, each lid equaling the frontal width. Tympanum concealed; a large vocal sac. Skin above covered with small warts, some of which are linear and curved. No skin folds. Toes elongate, free, knobbed at extremities and under each joint; two metatarsal and one median inner tarsal spur; no tarsal fold. Below, on the breast, smooth, minutely rugose posteriorly. Two large metacarpal warts. Heel reaching middle of orbit. From end of muzzle to shoulder 7 l.; to vent 1 in. 3 l.; width across angle of jaws 5 l.; length of anterior limb 10 l.; of posterior 1 in. 9 l.; of hind foot 7 l.

Above blackish brown; elbow, tarsus and foot broadly banded with pink grey; below and on inner surfaces of limbs yellow, marbled with black, the latter color predominating anteriorly, but divided by a median yellow line to symphysis mandibuli.

Hab.—New Grenada, on the River Truando. Obtained by W. S. Wood, of Michler's Surveying Expedition. No. 4339.

Paludicola is a genus of Wagler's which has been latterly overlooked. It is the only one beside *Schismaderma* among the *Bufo*nidae which lacks the parotoids; from this genus it differs in its manubrium sterni, free toes, and tarsal spur, in this last respect resembling *Gomphobates biligonigerus*. It

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agrees with *Bufo* in the fully developed frontoparietal bones, differing from *Epidalea* (*Bufo calamita* Auct.) and *Pseudophryne* in this respect.

Phyllomedusa dacnicolor.

Parotoids exceedingly weak, if present. Fingers very slightly, toes one-third webbed. Labial margin projecting, profile sloping. Tympanum one-half orbit. Eyes not very prominent, transparent, inferior palpebra reticulated with white veins. Mandibular outlines straight. Tongue long, pyriform, openly emarginate posteriorly. Skin above smooth; inferior areolations not extending on pectoral or gular regions. Vomerine teeth in two straight transverse rows between anterior margin of inner nares. A few small pustules on anterior part of sides, which are yellow, like the inferior surfaces. Superior surfaces (narrowly on femur,) violet blue. Upper lip not light bordered; gular region and posterior faces of femora immaculate. From end of muzzle to posterior border of tympanum 10 lines; from angle to angle of mandible 1 in. 1 l.; end of muzzle to vent 3 in. 6 l.; anterior extremity 2 in.; posterior limb 3 in. 10 l.

Hab.—Near Colima; from the large Xantusian Coll.

This species diverges widely from the type of *Phyllomedusa* in its webbed toes and almost absent glands, but the glands are only a little stronger in the *P. azurea*. It affords an easy passage to the true *Hyla*, whose family it enters, by the genus *Agalychnis* Cope. The type of the latter is *Hyla callidryas* Cope, and *H. moreletii* and *holochlora* are the other species. They have the tongue long and extensively free, sometimes emarginate, and the transparent inferior palpebra reticulated with strong white veins. The inner toes are remarkably lengthened and free of movement.

On the Limits and Relations of the RANIFORMES.

BY E. D. COPE.

Similar relations to those which exist between the mammalia *Implacentalia* and the remainder of the class, and vice-versa, are apparently repeated in other groups of greater or less rank in the animal kingdom. Among the tortoises, the *Pleurodera* separate themselves most strongly by the union of their ischia with the plastron, the absence of the arch of the *o. prefrontale* which elsewhere descends to the *o. palatinum*, or vomer, and their intergular shield; while they present modifications among themselves characteristic of most of the other families, arranging themselves according to the development of the parieto-mastoid arch, in an ascending series, which terminates in *Bothremys* and *Podocnemys*, where the temporal fossa is entirely roofed in, as in the sea turtles. In the *Lacertilia Acrodonta* we have a group equally removed from others of the order. The acrodont dentition, the great development of the *o. dentale* and final extinction of the *o. operculare*, etc., and the exclusion of the premaxillare from contact with the vomer, are peculiarities not found associated in other lizards, while their parallel representation of the groups of the *Iguanidæ* at least, among the *Pleurodonta*, is well known. In general these also form an ascending series to be measured by the gradual extinction of the *o. premaxillare** and *o. columellum*, which finally occurs in *Chamæleo*.

The *Raniformes* among *Batrachia Salientia* are in many respects comparable to the *Acrodonta*. They stand at the head of their order, possessing the most compact, powerful and complete organization, and in spite of the constant imitation of the many lower types, there is a certain homogeneity in important points. The structure of the sternum separates them at once, and

* This bone, said to be single in *Lacertilia*, is divided in all the true *Scincidæ*, in *Phyllurus* among the *Geocotidæ*, and, according to Owen, in *Hatteria*.